

First Announcement

PMAI-ARCI Workshop

on

**Advanced X-Ray-Techniques
for
Powder Metallurgy & Particulate Materials**

AXT-PM²

@

**ARCI, Hyderabad
January 17-19, 2024**

Organized by



**Powder Metallurgy Association of India (PMAI) &
International Advanced Research Center for Powder
Metallurgy & New Materials (ARCI)**

About the workshop...

Various X-ray based methods like conventional and high-flux X-ray diffraction (XRD), two-dimensional (2D) micro-XRD, X-ray photoelectron spectroscopy (XPS), small angle X-ray scattering (SAXS), three-dimensional (3D)-X-ray Computed Tomography, etc., are of immense importance in the field of material characterization. This workshop would focus on the basics and advanced techniques in various X-ray-based methods for characterization of powder materials, minerals, sintered composites, additively manufactured (AM) components (metals, alloys, ceramics, other non-metals, conventional / nanostructured grades). A series of lectures would be conducted by experts on these topics with case studies. The scope of the workshop would also include tutorials on qualitative phase analysis, quantitative phase analysis (RIR method and Rietveld refinement), trace phase analysis, lattice parameter, crystallite size and lattice strain estimation techniques, dislocation density estimation, etc.

Who can attend..

The workshop is intended for students (Masters/Ph.D.), scientists/academicians (junior to senior level) and industry professionals in the field of powder metallurgy (metal/alloy-powder production/processing/sintering), additive manufacturing, minerals, non-metallic particulate materials in ceramics, coatings, etc., apart from energy materials and magnetic materials.

Topics:

- PM Grades: Role of Characterization
- Introduction to X-Rays and X-ray diffraction
- Semi-Quantitative Phase Analysis by XRD
- Crystallite Size & Strain Estimation by XRD
- Residual Stress Analysis in AM/PM by XRD
- XRD under Non-Ambient Conditions
- Small Angle X-Ray Scattering (SAXS)
- Dislocations & Defects in Materials by XRD
- Texture Analysis in AM/PM by XRD
- X-Ray Photoelectron Spectroscopy (XPS)
- 3D-X-Ray Computed Tomography
- 2D-Micro-X-Ray Diffraction
- Quantification by Rietveld Refinement

Schedule:

Day	9:30-10:30		11:00-12:00	12:00-13:00		14:00-15:00		15:30-16:30	16:30-17:30
17 th	Reg. T/C		Inauguration	IGL-IS	Lunch	MK		KS1	AHK (T)
18 th	NR (T)	T/C	RK (T)	KS2		KS3		KSS1	KSS2 (T)
19 th	NH		SD	JJ1		JJ2		JJ3 (T)	*

(T) Tutorial; IGL: Inaugural Guest Lecture * Vote of Thanks

Registration Fees*:

Category of Participant	Up to Dec 31, 2023 (**)	After Dec 31, 2023 (**)
Student	INR 2000 (1500)	INR 2500 (2000)
Academic/R&D Institute	INR 7000 (6500)	INR 7500 (7000)
From Industry	INR 11000 (10000)	INR 12000 (11000)



* 18% GST extra; ** for PMAI members; Selection criteria : First-come-First basis (Seats Available : 80); For Registration, please fill and submit Google form available from the link: <https://shorturl.at/iqA48> or use the link from the QR code or contact any of the conveners by email.

Conveners

Dr. Malobika Karanjai
malobika@arci.res.in
☎ +919490403603

Dr. Joydip Joardar
joydip@arci.res.in
☎ +917993498901

Dr. Koppoju Suresh
sureshkoppoju@arci.res.in
☎ +917382627457

International Advanced Research Center for Powder Metallurgy & New Materials (ARCI)
RCI-Airport Road, Balapur, Hyderabad 500005, Telangana

Advisors...

Dr. Tata Narasinga Rao (Director, ARCI)
Dr. R. Balamuralikrishnan (Director, DMRL)
Dr. S.K. Jha (CMD, Midhani)
Prof. Anish Upadhyaya (IIT Kanpur)
Dr. Roy Johnson (Associate Director, ARCI)
Mr. D.S. Rao (Associate Director, ARCI)
Dr. G. Ravichandra (ARCI)
Prof. J.P. Gautam (Dean, SEST, Univ. of Hyderabad)
Dr. Vikas C. Srivastava (NML)

Mr. Aniket Gore (President, PMAI)
Prof. B.S. Murty (Director, IIT Hyderabad)
Prof. N.B. Dhokey (Vice President, PMAI)
Mr. Prakash Khole (General Secretary, PMAI)
Dr. G. Appa Rao (DMRL)
Dr. P.K. Jain (Associate Director, ARCI)
Dr. R. Vijay (ARCI)
Prof. B.B. Panigrahi (Dean, IIT Hyderabad)

Organizing Committee...

Dr. Malobika Karanjai (ARCI) (Convener)
Dr. Koppoju Suresh (ARCI) (Convener)
Dr. Neha Hebalkar (ARCI)
Mr. M. Ramakrishna (ARCI)
Mr. K. Naresh Kumar (ARCI)
Mr. G. Janki Rao (ARCI)

Dr. Joydip Joardar (ARCI) (Convener)
Dr. N. Ravi (ARCI)
Mr. S. Sudhakara Sarma (ARCI)
Mr. K. Ramesh Reddy (ARCI)
Mr. G. Murthy (ARCI)
Mr. K. Satyanarayana Reddy (ARCI)

AXT-PM²

Speakers...



Dr. Indradev Samajdar (IS)
*Professor, IIT-Bombay
Adjunct Professor, Monash Univ.*
Expertise: Crystallographic texture;
Microstructural engineering;
Thermochemical processing



Dr. Malobika Karanjai (MK)
*Scientist F, ARCI-Hyderabad
Joint Secretary, PMAI*
Expertise: Powder Metallurgy;
Magnetic Materials; Friction
Materials; Composites



Dr. Koppoju Suresh (KS)
Scientist F, ARCI-Hyderabad
Expertise: XRD; SAXS; Atom
probe tomography; Magnetic
Materials (Rare Earth based)



Dr. A. Harish Kumar (AHK)
*Senior Research Engineer,
Saint-Gobain R&D, India*
Expertise: XRD; 2D-Materials;
Ceramics; Powder Metallurgy; Metal
Matrix Nanocomposites



Dr. Rajiv Kumar (RK)
*Assistant Professor,
IIT Ropar*
Expertise: Powder Metallurgy;
Nanocrystalline materials;
Corrosion



Dr. K.S. Suresh (KSS)
*Associate Professor,
IIT Roorkee*
Expertise: Texture; Microstructure
analysis by XRD; ECAP; Deformation
behavior



Dr. Neha Hebalkar (NH)
Scientist F, ARCI-Hyderabad
Expertise: XPS; Aerogels;
Nanostructured materials (nano-
titania, nano-silver)



Dr. N. Ravi (NR)
Scientist F, ARCI-Hyderabad
Expertise: Residual stress analysis;
Mechanical testing; Nanocomposite
Coatings



Dr. Santanu Dhara (SD)
*Professor & Associate Dean,
IIT Kharagpur*
Expertise: 3D-X-ray Computed
Tomography; Biomaterials; Tissue
engineering



Dr. Joydip Joardar (JJ)
Scientist F, ARCI-Hyderabad
Expertise: 2D-micro-XRD; 2D-
Materials; Powder Metallurgy; Rare
Earth Metals; Metal Matrix composites

About the venue...

The Workshop will be organized at the Bhattacharjee Seminar Hall, International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI), Hyderabad. ARCI is an Autonomous Research and Development Centre of Department of Science and Technology (DST), Government of India with main campus at Hyderabad and with operations in Chennai and Gurgaon. The ARCI Hyderabad campus is located at about 15km/20 min drive from the Hyderabad Rajiv Gandhi International Airport and about 23km/45 min drive from the Secunderabad Railway station, 14km/30 min drive from Kacheguda Railway station and 15km/40 min drive from Hyderabad-Deccan/Nampally Railway station. Outstation participants may consider staying at nearby hotels, which are well connected via local transport. A list of hotels can be provided by the organizers on request or from MakeMyTrip/Ixigo, etc.

Sponsorship...

The workshop is partially supported by ARCI and PMAI. AXT-PM² also offers limited sponsorship opportunities to industries or organizations in the field of metallurgy, powder metallurgy, ceramics, additive manufacturing, particulate materials, minerals, pharmaceuticals, cement, chemical, battery and magnetic material industries, etc., in addition to various x-ray-based material characterization system manufacturers. Various sponsorship option and tariff is given below:

Category	Privileges	Tariff (Rs)
Platinum	Two-page colour advertisement in workshop Abstract Book Banner publicity with logo as platinum sponsor in lecture hall Banner publicity with logo as platinum lunch sponsor (all 3 days) Product brochure (up to 10 A4 pages) distributed to all participants	50000
Gold	One-page colour advertisement in workshop Abstract Book Banner publicity with logo as Gold sponsor in lecture hall Banner publicity with logo as Gold lunch sponsor (2 nd & 3 rd days) Product brochure (up to 2 A4 pages) distributed to all participants	25000
Silver	Half-page colour advertisement in workshop Abstract Book Banner publicity with logo as Silver sponsor in lecture hall Banner publicity with logo as Silver lunch sponsor (1 day-2 nd or 3 rd)	10000

An abstract book (printed copy) containing abstract of all talks at the workshop, the workshop program details and brief biosketch of the invited speakers will be distributed among all registered participants. In addition, a soft version of the abstract book will be provided to the participants in pen drive along with few free versions of the software and example data files to be discussed in the tutorials. Advertisement tariff for insertion of Advertisement in the Workshop Abstract Book and Registration kit is given below:

Category	Option	Tariff (Rs)
Advertisement-back cover	Multi colour	25000
Advertisement-Inside cover (Back/Front)	Multi colour	20000
	B/W	15000
Advertisement-Full Page	Multi colour	15000
	B/W	10000
Advertisement-Half Page	Multi colour	10000
	B/W	7500
Workshop Bag with logo	Multi colour or B/W	50000

Workshop Venue: G.S. Bhattacharjee Seminar Hall
International Advanced Research Center for Powder Metallurgy & New Materials (ARCI)
RCI-Airport Road, Balapur, Hyderabad 500005, Telangana